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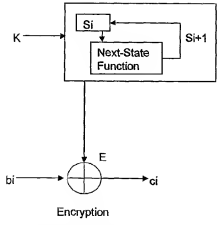
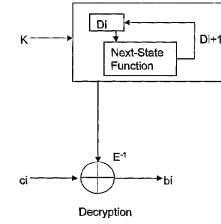
(54) Title: METHODS AND SYSTEMS FOR INCREMENTAL CRYPTO PROCESSING OF FRAGMENTED PACKETS





(57) Abstract: Methods and systems for providing confidentiality and/or integrity to fragmented packet transmissions, without reassembly of the fragments, across wired and wireless communications networks are disclosed. Encryption of a first fragmented packet can be performed by using an initial encryption state variable and keying material resulting in a first ciphertext fragment and a first encryption state variable. Then encryption of a second fragments packet can be performed by using the first encryption state variable and the keying material resulting in a second ciphertext fragment. Decryption of fragments can be performed in a similar manner as encryption. Computation of a message authentication code can be performed by computing a first hash state value for a first block size of bytes of a first packet fragment using an initial hash state value. and storing the first hash value and a first set of remainder bytes of the first packet fragment. The computation of the MAC continues by combining the first set of remainder bytes to a second packet fragment of the plurality of packet fragments resulting in a combined packet fragment. The MAC can then be identified using the second hash state value.

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B. FIELDS SEARCHED

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H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BRUCE SCHNEIER: "Applied Cryptography Second Edition" 1996, JOHN WILEY & SONS , USA , XP002410249 page 30 - page 31 page 189 - page 195 page 200 - page 207 page 455 page 458 - page 459 -----	1-23
X	WILLIAN STALLINGS: "Cryptography and Network Security" 1999, PRENTICE-HALL , USA , XP002410250 page 402 - page 405 page 408 - page 409 page 412 - page 416 ----- -/--	1-23

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/	Authorized officer
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/083362 A1 (PARK YOUNG HO [US] ET AL) 29 April 2004 (2004-04-29) abstract paragraph [0025] - paragraph [0032]	1-23

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004083362 A1	29-04-2004	NONE	

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ABSTRACT:

CHG DATE=20070302 STATUS=N>Methods and systems for providing confidentiality and/or integrity to fragmented packet transmissions, without reassembly of the fragments, across wired and wireless communications networks are disclosed. Encryption of a first fragmented packet can be performed by using an initial encryption state variable and keying material resulting in a first ciphertext fragment and a first encryption state variable. Then encryption of a second fragments packet can be performed by using the first encryption state variable and the keying material resulting in a second ciphertext fragment. Decryption of fragments can be performed in a similar manner as encryption. Computation of a message authentication code can be performed by computing a first hash state value for a first block size of bytes of a first packet fragment using an initial hash state value, and storing the first hash value and a first set of remainder bytes of the first packet fragment. The computation of the MAC continues by combining the first set of remainder bytes to a second packet fragment of the plurality of packet fragments

resulting in a combined packet fragment. The MAC can then be identified using the second hash state value.